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### REMARKS

Applicants respectfully request reconsideration of the above-identified patent application. Claims 1-10 and 13-32 are pending; claims 11-12 and 33-51 are withdrawn; and claims 1, 3-5, 7-8, 13, 16-19, 21 and 23 are amended. Applicants respectfully traverse the rejections as conceivably applied to the amended claims.

#### I. Election

Examiner Culbert has requested Election between: Group I (claims 1-10 and 13-32), drawn to a method for etching an aluminum metal material; Group II (claims 11-12 and 33-36), drawn to an aluminum material; and Group III (claims 37-51), drawn to an apparatus for etching an aluminum material. Applicants confirm the provisional election of Group I (claims 1-10 and 13-32) made on May 27, 2003 by the undersigned, and acknowledge withdrawal of claims 11-12 and 33-51 by the examiner.

#### II. Summary of the Invention

The invention as defined in amended independent claims 1, 13 and 23 is directed to a method for selectively creating on an aluminum article a surface that bonds well with adhesives and other materials. The process includes: anodizing at least one surface to create an anodic layer on that surface (or two or more surfaces with respect to claim 23); applying an etching composition to the anodized surface to remove (claim 13) or dissolve (claims 1 and 23) a portion of the anodic layer, thereby creating a plurality of protrusions (claims 13 and 23) that improve the adhesive strength of the treated surface. With respect to claim 1, the first side is

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selectably etched; and with respect to claim 13, the etching composition is prevented from etching at least one other surface of the aluminum article.

With this process, it is possible to anodize one or more surfaces of a piece of aluminum and then modify the anodic layer(s) of the anodized surface(s) to create a surface(s) that bonds well with adhesives and other materials--unlike the *unmodified* anodic layers of the prior art.

III. Rejections Under 35 U.S.C. §112, Second Paragraph

As originally presented, claims 8-10 were rejected under 35 U.S.C. §112, Second Paragraph as being indefinite. Claim 8 has been amended to provide the proper antecedent basis for the noted limitations in that claim. Therefore, Applicants respectfully request withdrawal of the §112, Second Paragraph rejection.

IV. Art Rejections Based On U.S. Patent 4,367,122 to Bednarz in view of 5,367,196 to Mahulikar

As originally presented, claims 1, 2 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar. Claims 3-5 and 7-10, as previously presented, were rejected under 35 U.S.C. §103(a) as being unpatentable over Bednarz in view of Mahulikar in further view of U.S. Patent 3,898,095 to Berdan (claim 3); 4,124,437 to Bond (claim 4); 4,013,498 to Frantzen (claim 5); admitted prior art (claims 7 and 8); and 3,776,783 to Venkata (claims 9 and 10).

Bednarz discloses a method for anodizing one side of a continuous web of raw aluminum metal. Bednarz repeatedly acknowledges that his anodizing process produces a

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specific anodic film initiated at the aluminum metal surface of the web and grown outward therefrom. Col. 1, Lns. 52-54; Col. 2, Lns. 15-17; Col. 4, Lns. 30-34. Bednarz fails to contemplate any further modification of this specific anodic film after its creation.

Mahulikar is directed to a heat dissipative, plastic encapsulated semiconductor. As shown in Fig. 3, the semiconductor includes an aluminum heat spreader 26 including a conventional anodic layer 42. Col. 5, Lns. 1-7. Mahulikar acknowledges techniques may be used to vary the build-up of the anodic layer 42 by changing current or solution used in the anodizing process. Col. 5, Lns. 8-16. Mahulikar also fails to contemplate any further modification of this specific anodic film after its creation.

Applicants respectfully submit that Bednarz and Mahulikar 1) are not properly combinable because there is no motivation or reasonable expectation of success for the combination, and 2) even if hypothetically combined, Bednarz and Mahulikar would not disclose, teach or suggest the subject matter of the amended claims.

First, Applicants submit that there is no motivation or reasonable expectation of success for the combination of Bednarz and Mahulikar because the references are directed to completely different anodizing processes. The motivation to make the Applicants' claim invention *and* a reasonable expectation of success must *both* be found in the prior art, **not** in hindsight of the Applicants' disclosure. *In re Vaeck*, 947 F.2d 488; 220 U.S.P.Q. 2d 1483 (Fed. Cir. 1991); M.P.E.P. §2143. Specifically, Bednarz is directed to a process that anodizes only *one* side of a continuous strip of aluminum, whereas Mahulikar necessarily anodizes *all* sides of an aluminum article. For example, in all the embodiments of Bednarz (Figs. 1-2), Bednarz contacts

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a single side of a continuous raw aluminum strip to grow an anodic layer *on that single side*. Bednarz, Figs. 1-2. In contrast, Mahulikar anodizes *all* surfaces of the aluminum heat spreader 26 to electrically isolate the part with the anodic layer 42. Mahulikar, Fig. 2, Col. 5, Lns. 17-27. These one-surface/all-surface anodizing processes offer no motivation for the combination of the references. Moreover, Applicants submit that Bednarz and Mahulikar are directed such different fields, that there is no motivation for their combination, that is, semiconductor component manufacturing (Mahulikar, Col. 1, Lns. 7-11) has nothing to do with anodizing massive coils of raw aluminum webs, tubing, extrusions, or lithographic plates. Bednarz, Col. 1, Ln. 56-Col. 2, Ln. 17.

Second, Applicants respectfully submit that even if hypothetically combined, Bednarz and Mahulikar fail to disclose, teach or suggest the process of amended independent claim 1 including: anodizing a first side of an unanodized aluminum web to produce an anodic layer and then *dissolving*, and thereby roughening, a portion of the anodic layer on the first side, but not the second side. Instead, Bednarz attempts to form "a very even and uniform anodic coating," Bednarz, Col. 2, Lns. 15-17; and Mahulikar uses conventional anodizing techniques to form a perfect anodic layer including "controlled diameter pores." Mahulikar, Col. 5, Lns. 1-7. After the anodic layers are formed, neither Bednarz nor Mahulikar does anything to modify those anodic layers--let alone dissolve and thereby roughen such carefully formed layers.

Claims 2-10 depend from amended independent claim 1, and therefore are allowable for at least the reasons noted above. Applicants further respectfully submit that with regard to dependent claims 3, 4, 5, 7 and 8, 9 and 10, Bond, Frantzen, the admitted prior art and

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Venkata, respectively, do not in make up for the deficiencies of Bednarz in view of Mahulikar noted above. For example, with regard to dependent claim 3, Berdan fails to disclose, teach or suggest preventing the etching composition from etching the second side of by applying fluids against the second side. Instead, Berdan *rinses* "any residual acidic material contained in the retained liquid on the surfaces of the foil." Col. 4, Lns. 10-15. Thus, the rinse water sprayed from manifolds 22 simply removes the etchant from the surface *after the etchant has etched the raw aluminum*.

Further, Bond and Frantzen fail to disclose, teach or suggest the creating of an anodic layer during anodization and then dissolving and thereby roughening a portion of that anodic layer. Instead, Bond and Frantzen etch holes or slits *completely through* bare metal, wherein the dimensions of the holes or slits are less than the thickness of the etched material. Frantzen, Col. 2, Lns. 31-33; Bond, Col. 2, Lns. 39-46.

Additionally, the admitted prior art does not make up for the deficiencies of Bednarz and/or Mahulikar, or any of the other references for that matter, because it only provides that both sides of raw sheet or coil aluminum can be anodized with either sulfuric acid or phosphoric acid. This admitted prior art fails to disclose, teach or suggest modifying--let alone dissolving a portion of--an anodic layer created by such phosphorus or sulfuric acid anodizing.

Finally, Applicants point out that Venkata is directed to a process for cleaning raw aluminum material before coating the bare metal with a special formaldehyde. Venkata, Col. 1, Lns. 45-63. Like Bednarz and Mahulikar, Venkata fails to disclose, teach or suggest anodizing

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aluminum to create an anodic layer and selectively etching that anodic layer to dissolve, and thereby roughen the layer.

V. Art Rejections Based On U.S. Patent 4,367,122 to Bednarz In View of Admitted Prior Art

As originally presented, claims 13-15, 20, 21 and 23-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bednarz in view of admitted prior art. Original claims 16-19, 22, 27-30 and 32 were rejected as being unpatentable over Bednarz in view of the admitted prior art, in further view of Berdan and Bond (claim 22), Bond (claims 16 and 29), Frantzen (claims 17 and 31), U.S. Patent 5,945,351 to Mathuni (claim 18), Berdan and U.S. Patent 4,338,007 to Fromson (claim 19), the Collie Publication (claims 27 and 28), Berdan (claim 30) and Venkata (claim 32).

As discussed above, Bednarz discloses anodizing one side of a raw aluminum web or sheet to grow an anodic film outward from the metal surface, but fails to further modify that anodic film. Col. 1, Lns. 52-54; Col. 2, Lns. 15-17; Col. 4, Lns. 30-34.

As is further pointed out, the background of the above-identified application provides that it is known to anodize both sides of a two-sided aluminum sheet with either sulfuric acid or phosphoric acid. Again, this admitted prior art simply provides that an anodic layer is created.

Applicants' respectfully submit that Bednarz and the admitted prior art fails to disclose, teach or suggest the process of amended independent claims 13 and 23 including anodizing aluminum to produce an anodic layer, and then applying an etching composition to remove a portion of, or dissolve, the anodic layer to create a plurality of protrusions for

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improving the adhesive strength of the surface. Both the admitted prior art and Bednarz teach the same thing--etch a raw aluminum surface once to create a perfect anodic layer on raw aluminum. Neither contemplates actually modifying the etched anodic layer after it is created, let alone the type of processing conditions that would be required to remove the anodic layer and maintain its evenness and uniformity. Bednarz, Col. 2, Lns. 15-17. Applicants respectfully submit that this conclusion can only be made in improper hindsight of the remaining portion of the Applicants' disclosure.

Claims 14-22 and 24-32 depend from amended independent claims 13 and 23, respectively, and are allowable for at least the reasons noted above. Applicants further respectfully submit that, with regard to dependent claims 22, 16 and 19, 17 and 31, 18, 19, 27 and 28, 30 and 32, Berdan and Bond, Bond, Frantzen, U.S. Patent 5,945,351 to Mathuni, Berdan and Fromson, the Collie Publication, Berdan and Venkata, respectively, do not in any way make up for the deficiencies of Bednarz in view of the admitted prior art noted above because the references fail to disclose, teach or suggest anodizing aluminum to produce an anodic layer and then applying an etching composition to remove a portion of, or dissolve, the anodic layer to create a plurality of protrusions for improving the adhesive strength of the surface.

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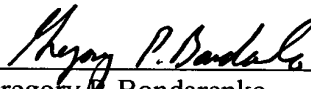
CONCLUSION

In view of the above amendments and these remarks, it is respectfully submitted that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested.

Respectfully submitted,

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